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Janssen, H.; Kiers, M.; Nijkamp, P.

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H. Janssen
M. Kiers
P. Nijkamp

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PRIVATE AND PUBLIC DEVELOPMENT STRATEGIES FOR SUSTAINABLE TOURISM DEVELOPMENT OF ISLAND ECONOMIES

H. Janssen Ministry of Transport, The Hague, The Netherlands
M. Kiers TNO, Delft, The Netherlands
P. Nijkamp Free University, Amsterdam, The Netherlands

1. Introduction

One of the most important prerequisites for attracting tourists to an area is the beauty of the natural environment. But if such an attraction force becomes successful, it has to be recognized that too large a number of tourists will damage or even destroy the natural environment, thus eroding the very basis of tourist activity. Several examples clearly illustrate this observation, like the case of Venice: a further increase of tourists in Venice will negatively influence its tourist attractiveness. This provokes of course the question of **carrying capacity** (and related policy strategies) of tourist area's.

Is it possible to avoid a situation in which the natural environment is damaged as a result of severe negative external effects from tourism? As a first orientation regarding this question it seems meaningful to introduce the notion of sustainable tourism development (STD). With STD we mean that tourism development is both in volume and in direction of development evolving in such a way that the pressure on the natural environment remains below the level of the carrying capacity for both the present and the future generation (see also the Brundtland report). One way of analyzing this is by means of appropriate indicators. STD indicators can help determining whether or not the development of tourism is damaging the natural environment, and to what extend. Some examples are: quality of the surface water, the level of noise in a certain area etc.

The problem of obtaining a sustainable tourism development is certainly a complex one. Many interest parties and organisations are involved in tourist activities and the sum of all their actions determine the possible success of STD. Each individual action in the tourist sector has its own environmental impact. To reach STD, it is important to streamline all such actions in order to reach a minimum of environmental stress. This means the selection of proper STD strategies. When the economic and/or environmental basis of an area is small, like on many islands islands, the need for the right STD strategies is even more important. Many island economies are economically dependent on revenues from tourism and need thus a careful implementation of STD strategies.

An important question is how different options for STD can be evaluated. Therefore, the main objective of the present paper is **to identify for island economies breeding on tourism a set of development objectives and options and the aim to evaluate such strategies on the basis of STD (e.g., by using scenario's)?**

As mentioned already, the tourist sector comprises a multiplicity of actors. Because of this large number of actors involved, we may categorize them and for our research we categorized them in the following groups: tourists, local inhabitants, local business, governments (local, regional, national and supranational) and non-local business (like tourist agencies).

This diversity of interests means that an evaluation of tourist strategies in a certain area has to be based on a broad spectrum of relevant (public and private) policy criteria. It is therefore difficult to present a standard answer to multiple problems that occur in many different situations. Therefor we do not try to present a bleuprint, but try to offer a framework for the analysiing these kind of complex dilemma's.
The paper is organized as follows. First, Section 2 will deal with some background remarks on the concept of sustainable development. Then in Section 3 various actors will be dealt with, with a main emphasis on public and private sector responsibilities for development. Next, various STD strategies will be presented, while in Section 5 - by way of empirical illustration- a set of scenario's from the Greek island Lesvos will be discussed. The paper will be concluded with some prospective remarks.

2. Drive to Sustainable Development

In developing a framework for judging the economic feasibility and environmental compatibility of new economic initiatives, it has to be recognized that economic development is not in the first place a matter of **quantity**, but of **quality**. Despite the admirable progress of our economies in a quantitative respect, we observe increasingly a decline in quality of life and environmental conditions to such an extent that also the well-being of future generations is severely eroded.

Although we are witnessing nowadays a widespread concern about our quality of life (both global and local), it should be noted that environmental decay is not exclusively a phenomenon of our century. The Greek philosopher Plato already complains in his Critias about the landscape changes in Attica which had transformed the environment into: "... bones of wasted body... richer and softer parts of the soil having fallen away, and the mere skeleton being left" (cited in Clark, 1986, p.6). Also in many other countries one observes many examples of earlier soil erosion which as a result of agricultural and forestry activities has affected the landscape in all time periods between nomadic cultures and modern high-tech agriculture (Wilkinson, 1973). Thus environmental problems seem to be intrinsically linked with human activities.

Despite the recognition of the long history of environmental problems, it should be noted that until the beginning of the twentieth century, in general, only relatively modest environmental changes were taking place, as the prevailing technological and economic system was unable to alter environmental conditions on earth dramatically. However, especially after World War II mankind's capacity to destroy our habitat has increased significantly, partly as a result of radical technological changes (generating huge amount of air, water and soil pollutants including many toxic materials), partly as a result of the rise in world population (and its subsequent rise in consumption and mobility patterns). The strive for a concerted development of the economy and ecology based on a coherent and integrated viewpoint has stimulated many social scientists to adopt systemic notions and concepts for achieving a balance between natural and socio-economic systems. The functioning of such natural and socio-economic systems has, in their view, to be studied from the angle of material inputs and outputs of all production and consumption processes. In this

context, new sub-disciplines such as human ecology and environmental economics have come to the fore, in which serious attempts have been made to ensure a merger between economics and ecology (see also Nijkamp, 1979). Especially in the past decade these efforts have been very intensive (see for a review Van den Berg, 1991). The awareness has grown that a balanced development is not only a matter of quantity in the present, but also of quality in the future.

Meanwhile an increasing political interest has developed regarding the depletion of on the earth's natural resources and the environmental decay. Despite many efforts, local, national and international policy bodies have been unsuccessful in ensuring a viable economic development trajectory that was compatible with environmental quality. For instance, the UN Conference on the Human Environment (Stockholm, 1972) has only very moderately achieved the high goals which were set for our planet.

The World Commission on Environment and Development, established by the General Assembly of the United Nations in 1983, was assigned the task to provide concrete recommendations for action on the interrelated issues of environment and development, seen from a strategic long-term viewpoint. The Commission Report (1987), "Our Common Future" (often named the Brundtland Report after the President of the Commission), is a remarkable document in that it offers a concrete hope for sustainable development.
The Commission beliefs that despite the potential catastrophes incorporated in our modern way of life human resources, knowledge and capabilities are available to create a sustainable development. Sustainable development is defined here as pathways of human progress which meets the needs and aspirations of the present generation without compromising the ability of future generations to meet their needs. It hence requires a fairer distribution of wealth within and among countries and groups in society. In this context, economic growth is not by definition a threat to sustainability, but even the only feasible weapon in the fight against poverty and disaster; with economic growth we can create the capacity to alleviate poverty and solve environmental threats. This requires that economy and ecology be merged from a local to a global perspective.

Environmental, resource, cultural heritage and coastal zone policies are fraught with many conflicts that threaten the idea of an **ecologically sustainable economic development**, advocated inter alia in the above mentioned Brundtland report. The intertwined nature of all processes in an economic-environmental system call for due attention to be given to economic and ecological considerations or paradigms from a steady state and/or long-term perspective.

Despite the global nature of many environmental problems, it is noteworthy that a major problem is caused by the **local scale** of environmental externalities, in terms of both causes and effects. For example, global problems such as acid rain, sedimentation, desertification, ozonization, eutrophication, ocean pollution and resource extraction are often the result of a large number of small-scale and local activities (without being controlled by an environment watchful constituency), while also the far-reaching environmental impacts can be observed most clearly at a local or regional scale. Consequently, the local/regional problems of land use (interpreted

in a broad sense, including landscape, "cityscape", soil quality, marine environments) are of central importance to environmental management.

In this context, we may also quote Clark (1986,p.11), who stated:

> "... we have learned just enough about the planet and its workings to see how far we are from having either the blueprints or the operators' manual that would let us turn that diffuse and stumbling management into the confident captaincy implied by the 'spaceship' school of thought."

Clearly, many attempts have been made in the past decade to model or replicate the complexity of dynamic economic-environmental systems, but strategic components were usually not adequately included, so that these models failed to provide effective and preventive environmental policies for co-evolution ensuring a balance between economic development (all quantitative and qualitative changes in the economy that lead to a positive contribution to welfare) and ecological sustainability (all quantitative and qualitative environmental changes that serve to improve the quality of an ecosystem and have hence also a positive influence of welfare). This applies to both the global level and the local level (like tourist development on the islands in Greece).

To clarify our thinking the following scheme may be helpful (see Figure 1). Especially the feedback from the externality (social costs) box to the resource box is important here, as it is becoming increasingly clear that environmental decay erodes the quality and quantity of the resource availability (as we witness nowadays in agriculture, forestry and fishing).

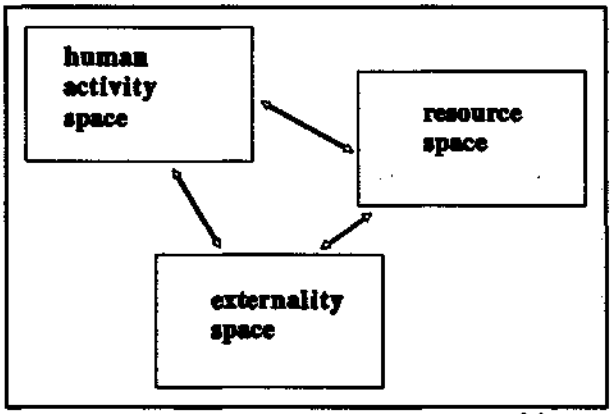

Figure 1. A System representation of human activities, resource use and externalities

Sustainable development would then require either a strict technical progress exceeding the degree of environmental decay per capita, or an application of strict economic pricing principles (e.g., based on the trustee principle where the government represents the unborn generation, or on the economics of altruism or solidarity).

In a recent article, Pearce (1988) adopts a specific position in the co-evolution debate by claiming that a further decline in natural resources beyond the point that we have already reached is actually injurious to economic development. Assuming that sustainability is a necessary condition for economic growth, he argues that the stock of "natural capital" should at least be kept constant (and preferably increased), while the economy is allowed to develop only within this restricted space. Clearly, this viewpoint raises important questions concerning the measurability of environmental quality.

Unfortunately, our current economic apparatus has not yet managed to devise an operational methodology for analyzing all the complexities involved in ecologically sustainable economic development (see Opschoor, 1987). This is also witnessed in a statement in the World Bank Annual Report (1985):

> " Degradation and destruction of environmental systems and natural resources are now assuming massive proportions in some developing countries, threatening continued, sustainable development. It is now generally recognized that economic development itself can be an important contributing factor to growing environmental problems in the absence of appropriate safeguards. A greatly improved understanding of the natural resource base and environment systems that support national economies is needed if patterns of development that are sustainable can be determined and recommended tot governments."

In conclusion, planning for sustainability requires a shift in our thinking on the development of our economic system. There is an evident need for more strategic thinking, more cohesive thinking and more multidimensional thinking in order to ensure a compatibility of economic and environmental interests. This means that both the strategic significance of sustainable development and the implications for practical policy strategies have to be envisaged, not only at the global level but also at the local levels. This also calls for more attention for sustainable regional and local planning and for a sustainable plan and project evaluation. The case of the Greek islands presents an interesting example here, as all ingredients of conflict planning and management seem to prevail here. Especially in this context the notion of STD is relevant, as it is a major challenge to seek for development strategies which use tourism as a pivotal activity (as tourism shows a very clear feedback between the resource box and the externalities box) and which ensure co-evolutionary development reconciling economic growth interests, social distributive interests and environmental interests not only in the short run, but also in the long term. This idea leads of course to the question which actors and initiators play a key role in STD policy. This will be discussed in Section 3.

3. Actors and Initiators in STD

In general, one may take for granted that people are interested in both prosperity and a high level of quality of their environment. In tourist areas prosperity can be generated by means of the tourist industry, but the development of the tourist industry may be at odds with the desired quality of environment. Policy-makers may try to avoid this possible conflict by developing tourism policy packages for STD.

A balanced co-evolutionary development will have to be based on the interests of all relevant parties involved. Tourism is a essentially 'normal' economic activity, which requires private initiatives (building, developing, financing, etc.). Thus the private sector is a key force in the tourist sector. It is also important from the viewpoint of income generation of local inhabitants, the creation of social overhead facilities for favouring tourism, and the organisation of the market. However, actions of the private sector may overlook social costs and distributive effects. Therefore the government is also an important party in an STD policy.

Then the question is: what are the consequences when policy-makers or governments, choose STD as a policy goal? One of the ways for the government to influence the tourist market is through the supply side. Only along these channels they can change the kind or the level of tourism facilities that are available. Clearly, this change in supply can only be profitable if it is met by an effective demand. This means that when a government wants to intervene, it has to be aware of the consequences for the supply of tourist facilities. Secondly, public decisionmakers have to consider whether or not there is a demand for these tourist facilities. However in this paper we will not focus any further on the demand side, while also the equilibrium between supply and demand falls outside the scope of this paper.

Above we have discussed the reasons why the government might be interested in STD, the interest of its voters in economic prosperity and the quality of the natural environment. But if a government chooses STD as its major orientation, what are the implications for government policy regarding tourism? Is there a clear role for a government policy in this sector?

In order to provide an answer to these questions, we will present and discuss possible arguments for government intervention in the tourist market. Traditional arguments for government intervention are (see Fokkema and Nijkamp, 1992):

- infant-industry argument
- market imperfections
- ethics and justice

These considerations will now briefly be discussed.

Infant industry argument

This argument is especially, but not only, valid for island economies.

The most typical characteristic of an island is its isolated situation which affects both the economy and the environment. Due to the isolated situation there is a limited basis for both the economic structure and the ecological system. As a result the government may be quite eager to protect the ecological and economical system against unbalanced development. So the argument here is that the government

wishes to protect the environment and/or the economy, because of the weaknesses ("infant-industry") these two sectors have due to isolated location.

Market imperfections
Often governments wish to intervene when there are market failures. These failures can be: imperfect competition (this forms the reason for providing public services), imperfect information (in order to protect less informed actors) and the absence of markets (in case of non-excluding goods or in case of third-party externalities). The argument concerning the absence of markets and especially third-party externalities refers also to environmental damage. Environmental damage is often insufficiently incorporated in market transactions, so that governments -from the viewpoint of sustainable development- wish to issue environmental regulations.

Motives of ethics and justice
If the government judge the market outcome as inequitable or unacceptable according to its ethical or political belief, then this too might be an argument for intervention. This often leads to policies which try to establish an adjustment in the distribution of incomes and wealth or where the government tries to (de)promote (de)merit goods.

Next to these arguments, there is the fact that besides market failures (which the government might use as an argument for intervention in the market system), there are also **government failures**. These failures might result from imperfect insight in the real demand for public services, insufficient recognition of (positive and negative) effects of policies (that occur in the long run), and bureaucracy and complicated and non-transparent legislation. So the government should always value its own possible failures against the "market failures" they try to prevent or correct. If the government decides that these arguments are, given their specific situation, sufficient reason to intervene, the question of how a government policy should be shaped is immediately at stake.

The policy can be designed as a **top-down activity**, which may be the best way in case the government knows exactly what the best thing to do is in every (specific) situation and if this centralized model is accepted by the public as well. But due to the fact that this is practically impossible, it might be interesting to examine arguments for a bottom-up approach.

The carrying capacity of ecological systems and the pressure on these systems due to human activity, differs in each situation, especially in the case of islands, which have their own isolated microcosm (see Coccossis, 1992). Because a policy should take all the relevant specific factors into account, a policy blueprint suitable for each specific situation is impossible to design.

Secondly, a sustainable development is difficult to reach, because in an interactive economy each action of all actors involved is relevant. The sum of all human actions together determines whether or not a development is sustainable. This means that the actions and goals of all actors have to be considered and preferably incorporated in a policy. Otherwise, a development can hardly ever be sustainable.

Consequently, due to the fact that the specific situation of the local ecology and the specific demands and actions of the actors involved have to be taken into consideration in a policy for sustainable development and due to the fact that (island) ecologies are vulnerable, a policy has to be in agreement with specific local situations. Therefore, a **bottom-up approach** may be recommendable, as then the specific requirements for policies can be better incorporated.

It should also be noted that economic and ecological systems are dynamic and this provokes the need for regular readjustment of STD policies. The only way to react effectively to changed situations are short communication lines between the people who notice the change and the policymakers or decisionmakers. These lines are in general shorter, when the geographical distance is lower, especially when there is hardly any distance. Thus, in case of island economies, effective reaction to changes in situations is best guaranteed if the policymaker or decisionmakers are resided on the island itself. For this reason it seems plausible that the local business and local governments play a leading role in a sustainable tourism and island development.

We have seen in this section that the private sector in general and the local business and local governments in particular should play a critical role in the development of a sustainable tourism development. But how should such a policy come about? This question will be the central issue in the following section.

4. Strategies

As described in the introduction, STD as a general orientation for a development strategy means that the tourism development evolves in such a way that the pressure on the natural environment remains below the level of the carrying capacity. This can be made more explicit by means of several key indicators. The carrying capacity of an ecological system should be expressed in the maximum level that these key indicators are allowed to reach. This means that **specific goals** should be set by determining the maximum level of the key indicators, given the framework of STD.

Before a policy to reach these goals can be developed, it is necessary to know which problem will arise on the path towards these goals, and thus a **problem analysis** should be carried out. For example, given the present policy for the tourism development, what is the expected level of the key indicators in the long term? If this level exceeds the maximum level that has been predetermined, the problem(s) definition regarding a STD has to be explicitly stated. If the new situation leads to incomplete outcome, a new strategy has to be chosen in order to reach the goals after all.

Which possibilities does the region have for a policy towards STD? This is determined both by the power structures and the resources of the region itself and in comparison with other regions. Relative strengths and weaknesses are important in determining the region's possibilities.

The **strengths and weaknesses** are usually easy to identify by looking backward. Looking forward is much more difficult. Apart from the use of common sense, a proper use of methods or tools can be of great help. One way of identifying strong

and weak points of policies is by distinguishing five critical success factor (or necessary conditions). Each of these five factors can undermine the success of policies if they have not been sufficiently taken into account. The five critical success factors are incorporated in the so-called Pentagon model (Maggi et al, 1992):

* Ecoware (ecological aspects)
* Finware (financial aspects)
* Orgware (organizational aspects, including the government organization)
* Software (human aspects, like education and labour market training)
* Hardware (environmental technology for protection of the natural or the physical environment)

The relative strengths and weaknesses of each of these five factors have to be determined.
In order to take the possible future developments into consideration, the expected **opportunities and threats** both in the current situation and in the future need to be examined. This can be done by means of the same framework.

After a thorough investigation of all relevant STD aspect in the past, current and future situation (see also Figure 2), strategic choices have to be formulated. In our analysis (see also Section 5) we have distinguished in two steps.

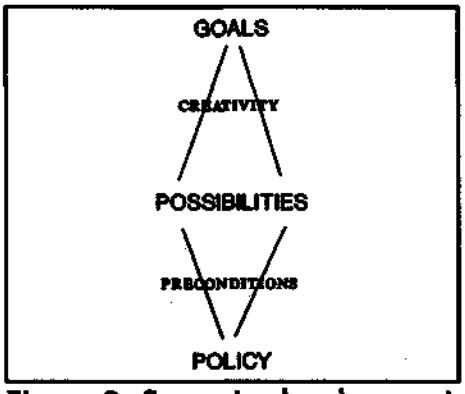

Figure 2. Scenario development

The first step is to broaden the view. With the use of **creativity** (and with the list of strengths, weaknesses, opportunities and threats) it is possible to invent many STD possibilities. This is a way to prevent the hazard of always using the same strategy for a problem, even if it might not be the best solution (the social costs of inertia). A straight forward way of using creativity is to draw up a list of possible options, which can be used as goals. This can be done in several ways, like:

* analogy (looking at similar problems in the past)
* brainstorming (active joint reflection on STD)
* lateral thinking (to break through the standard thinking)
* comparative advantages (compare yourself with (potential) competitors or competitive area's)
* morphological analysis

After inventing more ideas in the creative stage, it is important to screen them. A proper way of cutting down the number of possible options is by confronting them with preconditions. Therefore, the relevant **preconditions** have to be described, both in physical or material (e.g., money) and in non-physical terms (e.g., know how) as well as political and legal restraints. In order to reach STD, the ecological preconditions and constraints have be given due and balanced attention. It is very useful -in coping with STD problems- to know how "hard" certain preconditions (especially political) are in relation to the carrying capacity of a tourist area. It is also important to know how flexible politicians are in regard to economic demands or how exactly key indicators can be assessed.

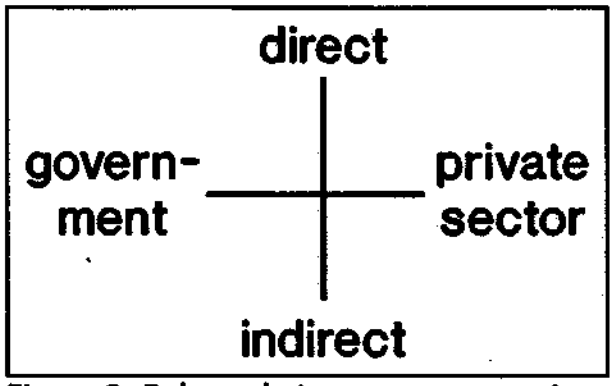

Figure 3. Balance between government and private sector and between direct and indirect instruments

After having made the strategic choices, a policy can be developed and implemented. Depending on the specific local situation, more or less emphasis can be put on two key actors, viz. the **private** or on the **public** sector. For this purpose the policy options can be measured on two axes: one for the initiator (or main actor) and one for the (in-)directness of the intervention in the market system (see Figure 3).

Policy-makers have to choose to what extent they wish to have an intervention in the market system or whether they prefer, for example, to let it be completely determined by the private sector. The same applies to the private sector.

In Table 1 a brief overview of the advantages and disadvantages of the four options from Figure 3 is given. This overview is useful when a choice for one or more of the policy instruments has to be made.

	pro	contra
government	* coordination * unification	* less support for implementation * bureaucracy
private sector	* support for implementation * specialization * efficiency	* economy-driven instead of ecology-driven motives
direct	* result oriented	* very strict * decrease in flexibility
indirect	* freedom/ flexibility * space for creative ideas	* not result-oriented

Table 1. Pro's and contra's of market intervention

These pro's and contra's have to be kept in consideration when the policy instruments are to be chosen. An illustration of these instruments is shown in Table 2.

	government ——		market forces
indirect	1) education/ information	4) infrastructure	7) free market
|	2) subsidies/ taxes\ pricing	5) agreements	8) niches
direct	3) legal instruments	6) permissions quota	9) investments

Table 2: Overview of main policy instruments

Here we will give a consice description of the instruments included in Table 2.
1) ***Information and education*** from the side of the government is mainly meant to make citizens, tourists and companies aware of the environmental problems and their role in it; it serves to show how they can contribute to the solution of environmental problems. It may also increase the public support for government policy. An example is information on the amount of waste tourists produce (for the tourists) and the costs they impose on society (for the local inhabitants).
2) ***Subsidies*** belong to the group of economic instruments; it is a market- oriented instrument. This means, for instance, that it is not prohibited to pollute, but policy activities will be (relatively) more expensive. The government can in this way stimulate environment-friendly behaviour (for instance, by imposing lower prices of

tourist facilities in ecologically less vulnerable areas).
Taxation is a similar instrument and tries to discourage environment-unfriendly behaviour. The government can impose a tourist-tax ("tourist-pricing") to discourage tourism in a specific area.
3) *Legal instruments* can have many forms. One of them is liability; this means that companies and citizens are liable (responsible) for damage they (or their products) cause to the environment. It is even possible to use this instrument in such a way, that companies have to prove that their products are **not** harmful to the environment. Hotels, for example might have to prove that the tourists they receive (or their tourist facilities) do not cause any damage to the environment.
4) The government may, for example, supply public *infrastructure* like waste treatment facilities, but they can also supply an infrastructure to make it easier for the private sector or tourists to act more environment-protective (e.g., supply public transport towards tourist attractions). However, it is of course not certain that they will actually use it. This type of infrastructure can be supplied by the private or the public sector but also by public-private partnerships (PPP's) for efficiency reasons.
5) The government can also make *agreements* about e.g. the reduction of pollution. This instrument is more flexible than strict regulations or quota. It is however important to point out that the government can always resort to laws if companies are not willing to act as agreed upon (to prevent the 'prisoners-dilemma'). For example, the maximum number of hotel rooms or the maximum height of hotels can be agreed on. This instrument is especially useful in "prisoners-dilemma" situations, which often occur in the tourism development.
6) *Permissions or quota* for the amount that a company is permitted to pollute, are an instrument which gives the government the possibility to determine the exact amount of future pollution. With subsidies or taxation, this is not always possible. The problem of permissions is that it can lead to market imperfections and illegal action. A way to decrease this problem, is by making the permissions tradable: the permissions can be sold by means of an "auction". The maximum number of tourists can also be fixed in this way ("tourist-quota").
7) *Free market* means here that there is no direct intervention in the market system by the government.
8) *Niches* are specific fractions of the total market. A group of suppliers of tourist facilities can, for example, decide to concentrate on a certain segment of the tourist market, like nature tourism or health tourism.
9) By *investments* are meant mainly large investments made by the private sector (e.g., large tourist organizations) which determine significantly the image of the tourism in a certain area.

After one or more policies have been implemented, they have to be evaluated. In this situation the central question to be answered is to which extent they lead to an STD. In other words, STD assessment focuses on the question wether it can be expected that in the long run the relevant key indicators will be below the maximum level of the carrying capacity.

We will show some of the above described methods in the following section. A subsequent section will offer examples of a study carried out on the island of Lesvos

in Greece.

5. Scenario's

Various theoretical issues discussed above, will be referred to in this section in the description of the **scenario's**. Scenario's can be a useful tool to clarify future implications of policy decisions. For that purpose scenario's very much simplify the reality and are not meant to predict the future.

The achievement of an overall STD objective is a central issue when activities for tourism scenario's have to be chosen. For example, in the case of Lesvos one may presume that mass tourism, large hotel complexes and beach clubs, sophisticated infrastructure etc. can be ingredients for strong economic growth and therefore for an economic growth scenario. A scenario incorporated all such activities has various implications in many fields (e.g., environmental impacts), and these implications can be determined with the use of several indicators.

Before we discuss in more detail the case of Lesvos, some issues which play generally a role in a 'scenario discussion', will be pointed out:
A. the objectives and the possible combination of objectives
B. the importance of scenario's for the different actors
C. the evaluation of scenario's from a 'sustainability' point of view

A. Objectives

In policy analysis many objectives can be chosen; therefore have we categorized here the objectives in three main groups or three general objectives: efficiency, equity and conservation. In our research we have developed three different extreme contrast scenario's each based on only one of these **general objectives**.

This approach means that the efficiency scenario is completely based on activities, which will lead to a maximum of (quantitative) economic growth. Some examples of those activities are: hotels, airports, highways, many recreation area's etc. Each activity in this scenario is allowed, as long as it will lead to further economic growth.

The second extreme scenario is the equity scenario. In such a scenario all activities must lead to a more equal socio-economic distribution of wealth and knowledge and a higher level of well being. Education and health care are very important elements in this scenario.

The last extreme scenario is based on conservation. Protection and conservation of the environment and culture will form here the central criterion for all activities. Ecological farming and small scale fishing, for example, are first of all conservation-based activities.

As said before, these are three extreme scenario's. They can be used for thought experiments, as they can clarify some implications of certain policy decisions. They are not used to predict the future. Clearly in reality the objectives are usually more complex (and not of a mixed nature). For this reason, it is interesting to pay attention

to combinations of these three contrast scenario's. This can be illustrated by using the Möbius triangle in Figure 4, which allows to make all combination of these extremes.

The combination of efficiency and equity objectives (no. 4), equity and conservation (no. 5) and conservation and efficiency (no. 6) form new and also interesting point of views. But in reality policies will tend to use a combination of all three (main) objectives, and therefore the seventh scenario is important. This scenario which makes a simultaneous connection between all three extreme scenario's, may then be seen as the result of a balanced mix of the three main objectives. Finding the right balance between these extremes will then be the main focus of STD policy assessment.

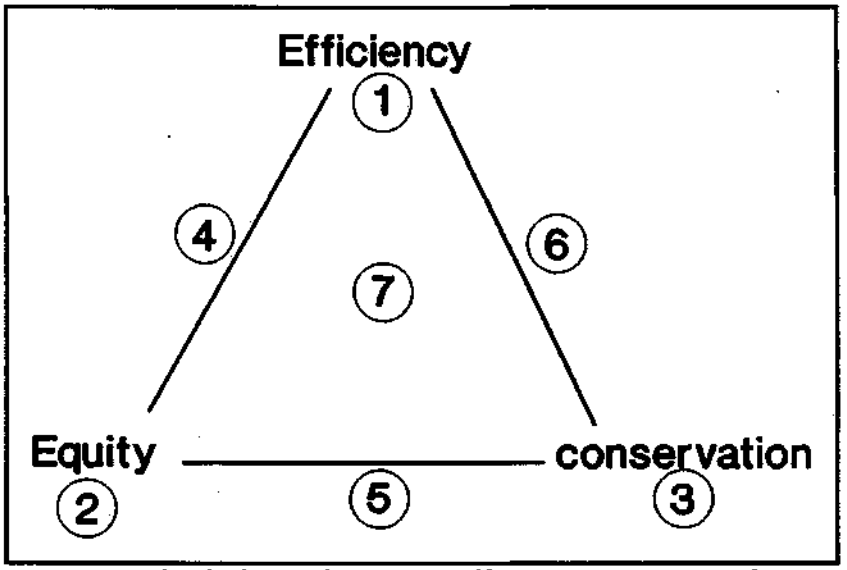

Figure 4. The balance between Efficiency, Equity and Conservation

B. Actors

In the first section of this paper five groups of actors have been distinguished. The role of each group in the scenario discussion can be very different. Each group will have its own objectives. And these objectives have to be considered, if each group should be stimulated to cooperate in achieving STD. As the actions of all actors involved partly determine the success of an STD, a scenario which has incorporated most the objectives of the different groups, will likely lead to the best results (i.e., with the strongest general support).

Policies may of course always have general objectives, which may not always be interesting for individual actors, but are of great importance to society as a whole. For this reason, policy makers find it often more appropriate to choose a more abstract objective, like 'sustainable development'. The basis for a scenario is the general objective and not the actor, but when creating and choosing proper policy instruments attention to the different actors will have to be paid.

C. Evaluation of Scenario's

The third important issue here is the evaluation of scenario's. Scenario's are useless if they are not used to evaluate the various STD options. If several scenario's are created each based on a different STD strategy, the question of is the best scenario has to be answered. Therefore, the determination of indicators -in relation to evaluation criteria- is crucial. If the general objective would be sustainable development, different indicators will be used compared to an objective like 'economic growth' (or at least the weight that is given to specific indicators is different).

In the case of the research on the island of Lesvos, we used the theoretical framework described above. In the following Section some elements of the research done are presented, to show some of the practical applications of this framework.

6. The Case of Lesvos

In this section the empirical work undertaken for the island of Lesvos will briefly be described. It is not useful to describe here all research results and therefore only some main issues will be shown. Three scenario's will be presented here, two extreme scenario's and a mixed one, to illustrate the differences.

Scenario 1. Efficiency Scenario

Although Lesvos has a good potential for **exclusive tourism** a limited number of tourists but of a high quality and using expensive facilities it is not possible to develop only the exclusive kind of tourism. Therefore, it is better to allow for and control the other types of tourism development. There will be always a group of other tourists like mass tourism.
In this scenario first priority is given to exclusive tourism and secondly to a controlled development of other types of tourism, which may function as a side-activity.
In this paper we describe just the main economic activities of this scenario.

Main economic activities

* a large number of small and luxury (high quality) hotels, pensions
* 8 - 10 foreign villages; these villages may count some 200 - 500 houses; people who live in these villages are foreigners; they stay here during the whole year (no season problem), while in summer only some of them will stay (or otherwise they will let it to tourists). These villages have their own (foreign) identity, shops, services, etc. Japanese tourist behaviour in Australia is a good example of the latter phenomenon.
* many villa's and other high quality houses will be let
* a large number of specialized restaurants, high quality taverna's, etc.
* a few larger tourist centres for other types of tourism: sun, sea, sand; sports; it will be spread over about 3 locations with middle class hotels, beaches, bars and restaurants (not exclusive)

Next to these main economic activities, there are several-side activities like large infrastructure projects and supporting services. Important indicators in this scenario are the gross regional product and the amount of employment.

Scenario 2. Conservation Scenario

Lesvos has a long history in economic activities like agriculture, stock breeding, fishing and some typical kinds of industry. Nowadays new economic development is not focused on these original activities like for example the production of olives, because there is world-wide competition on this market and profit margins are very low. There are many reasons to develop other activities.

On the other hand there will always be a demand for agricultural products, fish, etc. Conserving the cultural and physical environment and knowing there will be a market for these more traditional (but essential) products, the development of Lesvos can be concentrated on the **traditional economic activities**.

However, this is not as simple as it seems at first glance; first of all, the demand for agricultural products is not always the same. There are always new products, modernized production techniques, etc. The expectation for the next era is that specialization in high quality and nature based products may become very important (with an increasing demand) and competition in this field will be strong. Furthermore, the mentality of the people (the attitude of Lesvos inhabitants) is not very innovative; they are not very open to new developments. This means an extra handicap in specialization.

Nevertheless, this scenario will be focused on conservation and from that point of view it is useful to think about development in the traditional sectors, albeit in a modernized way. One has to exploit what has been built up in thousands of years. This leads to the following set of activities.

Main economic activities

* ecological farming; this type of farming is not based on the idea of economies of scale but on the idea of producing in a natural way (high quality products, production on continuity basis, without chemicals). In Western European countries this type of farming becomes more popular; future expectations are favourable. So for Lesvos most of the farms will change into ecological farms under scenario 2. This change in the agricultural sector will be difficult, but the current decline of this sector has to lead to a new modernized sector.
* stock breeding; Lesvos has always had many sheep and produces the famous Greek yoghurt. More specialization and better marketing will lead to good prospects.
* specialized fishing; the traditional way of fishing does not have good prospects due to depletion of the fishing grounds. On the other hand the fishing tradition can be used in a new, small scale on the basis of specialized fishing, for example, by setting up new fishing farms which use the natural thermal sources of the island. Specialized fishing is not only good from a conservation point of view, but

it will lead to higher profit margins (efficiency).

* culture tourism; some events and activities for a limited number of tourists. This tourism can be based on the cultural history of Lesvos.

The basis of this conservation-oriented scenario leads to completely different indicators like the build up area, the level and amount of cultural activities and the pollution level. Indicators like these can be used to access the success of this scenario.

Scenario 3. Sustainable Tourism Development

The scenario with the STD orientation is built up from elements of all three extreme objectives. Although the balance of these objectives is open for discussion, the headlines of this scenario are as described below, based on a compromise between tourism, environment, growth and distribution.

Very important in this development may be a **network of conference centres** for national and international congress tourism. Favourable locations for high quality centres for conferences and seminars are often characterized by a quiet and inspirational environment. The location is an important issue when organizing conferences. But next to an inspiring environment there must be a network of supporting facilities and activities (e.g., telecommunication services).

It is for various reasons attractive to develop such centres:

(1) it generates a large and direct inflow of money; there is a high profit margin in these activities

(2) such centres need a good network of services, infrastructure, etc. and most of these activities also support the development of the island in general

(3) commercial education and conferences will have their impact on the island's education level

(4) these activities are spread all over the year; only in summer there are less activities, so it is complementary to tourism activities. In particular, the importance of a development based on activities which are spread all over the year has to be stressed here; it is more efficient; the employment is more stable and there are better possibilities for a structural conservation policy.

The other main activity is agriculture; alluded already to the potential of more **specialized agriculture**. In this scenario, specialization is not based on the "process" (like ecological farming) but on the "product". Although the production methods would have to change, the future of the current agriculture can be based on some new specific products. A network of services can support it.

The following activities can now be distinguished.

Main economic activities

* conference centres; the island of Lesvos is not the best place for mass conferences, but there are good possibilities for smaller and medium sized centres. In this scenario a plan of 2 medium sized centres (max. 500 people) and 10 smaller centres (50 - 100 people) seems to be ideal.
* 5 professional education and research institutions, especially in the field of tourism, agriculture, culture, etc.
* archaeological centre for research and education; one may think of a centre for traineeships for archaeology students.
* some bigger and medium sized farms which are specialized in some new products; there has to be a clear specialization in specific products, because Lesvos has natural/physical disadvantages for the production of mass goods.
* a number of ecological farms; although this scenario is not based on this process specialization, it is good to take part in this trend.

Indicators for success can be the evaluation indicators used for the measurement of success in the previous scenario's, but the main emphasis has to be put on the key indicators which are of vital importance for the sustainable tourism development (see Section 4).

It is in principle to design numerous STD scenario's, based on combinational analysis of distinct choice options (see for details also Giaoutzi and Nijkamp, 1993). The evaluation of such scenario's will normally be based on multiple policy criteria, and hence multicriteria analysis (MCA) may be a proper analytical way to select the best possible alternative (see for further experiments with MCA for the development of islands; Giaoutzi and Nijkamp, 1993).

7. Final Remarks

The concern for environmental decay is as such not recent, but especially in this century mankind has been able to turn it into a global in stead of a local or regional problem. The global problems are, however, mainly the result of the local scale of externalities in terms of both causes and effects. Therefore, solutions have to be found on a regional scale, but also because of the poor results so far of international bodies in dealing with global environmental problems.

There is not and probably will not b a blueprint for a STD-policy. As described before, each situation is different and requires a different approach and solution, especially in the case of peripheral island economies. Our arguments have been based on the assumption that 'solutions' cannot be brought about top-down, but bottom-up; a shift in thinking might be necessary here. The local market with its own initiatives should in this view form the basis for sustainable development.

There is also a role for governments especially local authorities, as they can influence developments into a desired direction. They should not try to coordinate and influence the entire process of development, but rather assure that the growth of

the economy and the ecology is be a balanced growth.

For developing a policy for STD, in our study several aspects and phases have been described, as well as certain strategic choices that have to be made (e.g., the extend of government influence that is desired). We have also tried to put forward the consequences of our ideas in several scenario's for Lesvos. It should be emphasized that these scenario's are not meant as policy proposals, but as exercises to point out what the consequences of certain decisions may be, and how they can be systematically assessed and evaluated.

With this paper, we have tries to present a framework to identify a set of policy objectives and options in order to determine a strategy which can form the basis for a sustainable tourism development.

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